

**Amendments to the Specification:**

Please replace paragraph 0015 with the following amended paragraph:

[0015] In one embodiment, the antenna beamforming system is adapted to generate ~~a plurality of one or more~~ beams. In accordance with this embodiment, the beamforming system comprises an RF signal path to each element of the antenna array for each of the plurality of beams, and the calibration system is adapted to calibrate the signal paths to each of the antenna elements associate with a particular beam at one time. In addition, each of the antenna elements of the antenna array is radiatively coupled with a plurality of calibration probes (*e.g.*, 2-3), so each antenna elemental path will have multiple calibration data. In accordance with this embodiment, the calibration system further comprises a switch for switching between the plurality of calibration probes, and the signal decoding and processing system decodes and processes encoded calibration signals from the calibration probe to which the switch is connected, generating calibration data for each of the elemental signal paths for the particular calibration probe to which the switch is connected. Thus, the signal decoding and processing system generates calibration data for each of the calibration probes separately, and then the calibration data for each of the elemental signal paths are combined to generate one set of calibration data for each signal path; *e.g.*, calibration corrections for each beam of each antenna elemental path. In some embodiments, the calibration data may be adjusted based-on the location of the associated probe within the antenna array before they are combined.

Please replace paragraph 0017 with the following amended paragraph:

[0017] Again, the antenna beamforming system may be adapted to generate ~~a plurality of~~ one or more beams, and thus, the beamforming system comprises an RF signal path to each element of

the antenna array for each of the plurality of beams, and the calibration system is adapted to calibrate the signal paths to each of the antenna elements associate with a particular beam at one time. Also as mentioned above, each of the antenna elements of the antenna array is radiatively coupled with a plurality of calibration probes (e.g., 2-3), so each antenna elemental path will have multiple calibration data. In some embodiments, the calibration system may further comprise a switch for switching between the plurality of calibration probes, and the antenna array receives and encodes a calibration tone signal transmitted from the calibration probe to which the switch is attached, generating probe encoded calibration signals for each of the elemental signal paths. The signal decoding and processing system then decodes and processes the probe encoded calibration signals, generating calibration data fore each of the signal paths for the particular calibration probe to which the switch is connected. Thus, the signal decoding and processing system generates calibration data for each of the calibration probes separately, and then the calibration data for each of the elemental signal paths are combined to generate one set of calibration data for each path; *e.g.*, calibration corrections for each beam of each antenna elemental path. In some embodiments, the calibration data may be adjusted based-on the location of the associated probe within the antenna array before they are combined.

Please replace paragraph 0046 with the following amended paragraph:

**[0046]** As discussed above, because the calibration probes are integrated with the antenna elements and are in relatively close proximity to the antenna elements, multiple probes may be needed to communicate with all the elements in the array. Indeed, depending on the location and configuration of the probes in the array, each of the probes will be radiatively coupled to different sets of antenna elements in the array, with some probes communicating with many of the same elements as other probes in the array. For example, each antenna element will communicate with a plurality of the probes (*e.g.*, 2-3). Thus, to accurately calibrate the entire antenna array, it is beneficial to run the calibration process for each of the probes, adjust the results based on the location of the probes in the array and then combine the results to generate a

final calibration result, for example, by averaging. Thus, in this manner, probe switch 312 is used to switch between the probes, so that the calibration process can be run for each probe separately. In addition, in some embodiments, the combination process could weight the results of the measurements from the probes based on the signal-to-noise ratio for a given probe. That is, measurements from probes having higher S/N ratios would be weighted ~~less~~ more than measurements from probes having lower S/N ratios. Further, as one skilled in the art will appreciate, to calibrate the array properly, the calibration process is run for each of the beams of the array using the multiple probes for each calibration process.

Please replace paragraph 0051 with the following amended paragraph:

**[0051]** The calibration system performs the calibration process for each of the probes in the array, generating one or more recovered amplitude and phase weights for ~~each beam of each of the antenna element paths~~ for each beam in the array. These one or more recovered amplitude and phase weights for each beam of each element path for each of the plurality of calibration probes then are combined to generate a final relative phase and amplitude for each beam of each element path in the receive array, which then are used in a conventional manner to calibrate the array, thereby providing for correction of the far-field pattern.